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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/755,337	01/05/2001	Yu-Lin Chen	510553.92217	3946

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EXAMINER
CHANEY, CAROL DIANE

ART UNIT	PAPER NUMBER
1745	

DATE MAILED: 11/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/755,337	CHEN, YU-LIN	
	Examiner	Art Unit	
	Carol Chaney	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *43-76* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *43-76* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *17* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

Specification

The amendment filed 02 September 2003 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: In claims 39, 54, and 66 applicants' amendments broaden the scope of the claims by allowing incomplete coatings on the wires. In claim 39, the claim previously required "a lead alloy coated on substantially all surfaces of the network", whereas the amended claim requires only "a lead alloy coated on the wire elements; ...", which does not require substantially all the surfaces to be coated. Similarly, claim 54 is broadened because it previously required a coating on the plurality of surfaces of the plurality of wires, but currently only requires a coating provided on the plurality of wires. Thus, the claim previous required all of the surfaces of all of the wires to have a coating, whereas now it requires only portions of each wire to be coated. Claim 65 required a lead alloy coating layer over all of the exposed surfaces of the wire network, whereas it now requires the coating only over at least a portion of the network. Applicants' drawings 2-6 illustrate coating over the entire surface of the wire network, and on page 6, lines 30-31 states "the alloy coating is applied to all surfaces of the grid network..." Thus, applicants invention as filed did not include partially-coated grid networks. Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 43-76 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. As discussed above, the originally claimed invention had essentially complete coverage of a grid network with a lead alloy. As amended, the claims require the grid network to be only partially covered, which is not part of the invention as originally filed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 35-76Claims 35-76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cannone, US Patent 3,556,853 in view of Chen, US Patent 5,858,574.

Cannone discloses a grid for a lead-acid battery which includes wire elements connected to nodes. Each wire has a hexagonal cross section intermediate the opposed ends of the wire elements (see Figs 1 and 2) and a generally rectangular cross section at the end of the wire elements. Note, for example, the intersection of elements 11, 12 and 13 with element 14.)

The disclosure of Cannone differs from applicants' claims in that Cannone does not teach coating the inventive battery grid and does not specify elemental grid compositions. Chen discloses lead-acid battery grids

Chen teaches that lead-calcium alloys can be used in casting, rolling, and expanding process to make battery grids. (Column 1, lines 37-42.) Chen further teaches that coating lead calcium grids with a lead-tin alloy significantly extends the lives of batteries having the coating. (See column 2, lines 9-11.) Thus it would have been obvious to one of ordinary skill in the art to form the grid disclosed by Cannone from a lead-calcium alloy, because Chen teaches lead-calcium alloys are a versatile battery grid material. One of ordinary skill in the art would also coat a lead-calcium grid with a lead tin alloy because Chen teaches this will extend the life of the battery.

With regards to claim 42, any material, and any coating will be porous in the broadest meaning of the term.

With regards to claims 43-47,Chen teaches specifically that lead-tin alloy coatings having between 0.1 and 20% tin may be used, and coatings having 1 to 20 % by weight antimony and up to 2% by weight tin may be used. (Chen, column 4, lines

36-38 and 62-65.) In a specific example, a coating with a melting point of 590 °F is used. (Column 5, lines 34-35.)

With regards to claims 48-52, Chang discloses Pb-Ca-Sn alloy grids containing 0.08 wt% Ca and 1.5 wt% Sn. (Column 4, lines 46-48.)

With regards to claim 53, the limitation "at least about 0 to about 0.02 weight percent silver" is interpreted to encompass 0 weight percent silver, and thus this limitation is met by the Chang disclosure.

With regards to claim 54-57, Figures 1-2 provided in the Cannone patent illustrate battery grid surfaces. A dipping process such as disclosed by Chen, would provide a covering on all surfaces.

With regards to claims 58-61, Chen specifically teaches lead-tin alloy coatings having between 0.1 and 20% tin may be used, and coatings having 1 to 20 % by weight antimony and up to 2% by weight tin may be used. (Chen, column 4, lines 36-38 and 62-65.) In a specific example, a coating with a melting point of 590 °F is used. (Column 5, lines 34-35.)

With regards to claim 62, Cannone does not specifically show a lug in the Figures, but one of ordinary skill in the art would recognize an electrical connection between the battery grid and the battery exterior (a lug) is necessary for battery operation.

With regards to claim 63, Cannone discloses grids pasted with active material. (column 2, lines 51-55.)

With regards to claim 64, Cannone disclosed hexagonal cross sections. (See Fig. 2)

With regards to claims 65-72. Cannone discloses battery grids having a substrate with a plurality of wire elements forming spaced apart apertures. (See Figure 1.) The grid is pasted with active material; the grid wires are means for supporting active material. As discussed above, Cannone does not disclose providing a layer of material over the grid wires. Chen discloses battery grid substrates coated by immersion in a melt of tin, lead-antimony, lead-silver or lead-tin. (Note Chen, column 2, lines 18-19 and column 6, lines 26-30.) As discussed above, it would have been obvious to one of ordinary skill in the art to coat the grid disclosed by Cannone based upon the teachings of Chen.

With regards to claims 73-76, Chen specifically teaches lead-tin alloy coatings having between 0.1 and 20% tin may be used, and coatings having 1 to 20 % by weight antimony and up to 2% by weight tin may be used. (Chen, column 4, lines 36-38 and 62-65.) In a specific example, a coating with a melting point of 590 ^{o}F is used. (Column 5, lines 34-35.)

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carol Chaney whose telephone number is (703) 305-3777. The examiner can normally be reached on Mon - Fri 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 703-308-2383. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Carol Chaney
Primary Examiner
Art Unit 1745

cc